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CONIFERS OF THE MORTON ARBORETUM X

Pinus armandi, Franchet, Armand Pine or Chinese White Pine

A shipment of seed sent to France in 1895 by Père Farges, missionary to China, followed by another to Kew two years later by the horticulturist-explorer, Prof. Augustine Henry, marked the introduction into the Western world of this comparative newcomer among Asiatic pines. And, notwithstanding the fact that it is a tree of many desirable traits, it is still comparatively unknown and little grown. It may be of interest to know its name honors Père Armand David, missionary priest, scientist and botanist, whose name has been linked to so many plants collected in the Orient.

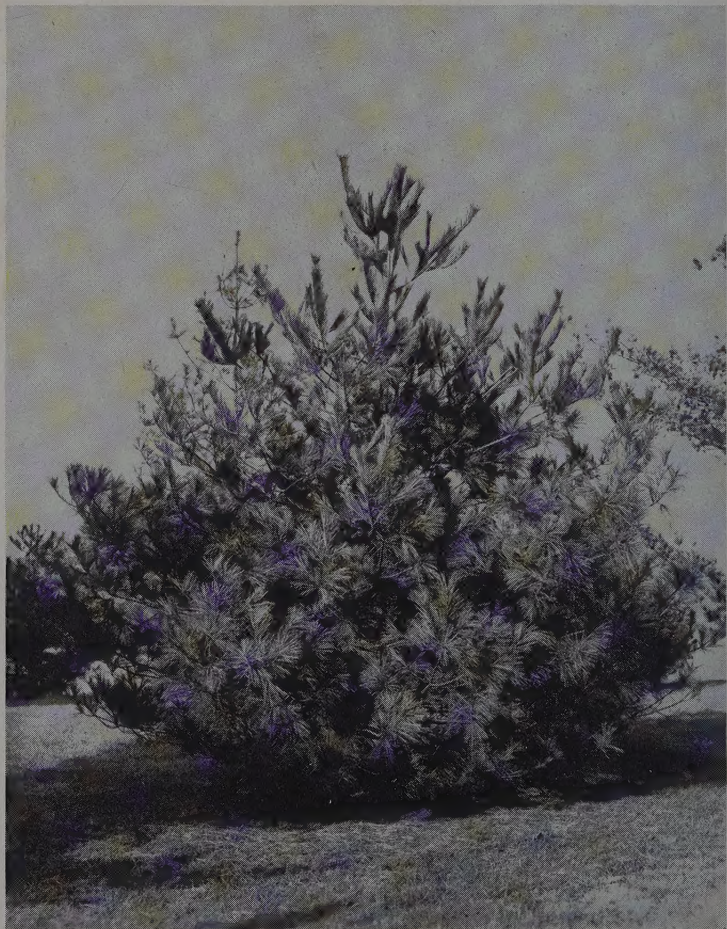
Although most abundant in the mountains of southwestern China, where it occurs at elevations of from four to six thousand feet, it is also found in Formosa and Korea. Typical specimens reach a height of fifty to sixty feet, loose of habit and with widespreading horizontal branches and long drooping or spreading needles resembling those of the Himalayan Pine, *P. griffithii*. In fact, it has been said that until it reaches fruiting size (12 or 15 years of age), the Armand Pine is scarcely distinguishable from the latter.

One of the so called "five-needled pines", its thin, slender, three to six inch needles are grouped five to a cluster, each needle showing a characteristic bend or twist at the base. Their identifying roughness, evident when stroked the wrong way, is the result of prominently serrulate margins. A bright green color gives them a lively landscape appearance. The needles persist two or three years before dropping.

The Armand Pine starts to flower at an early age, trees less than six feet tall not infrequently producing pollen. The short-stalked, pendent, yellowish-brown cones following require two years to attain their ultimate size and shape—thick, weighty cylinders two to three and a half inches wide, four to eight long, and slightly tapering. They are made up of thick, appressed, obovate scales much thickened in the middle, but **not reflexed**. The seeds are wingless.

A look at the bark of this pine will disclose it to be pale gray and smooth. The latter feature also typifies the coarse, glabrous, olive-green branchlets which are sometimes minutely glandular. Chestnut-brown, cylindrical winter buds are another identifying characteristic.

In spite of the fact that protection from cold winds is recommended, *Pinus armandi* has done well in the Arboretum Pine Collection in rather exposed positions. Several bushy trees, the largest now about 12 feet tall, are good examples of its juvenile form.



Pinus armandi Franchet, Armand or Chinese White Pine, in the Arboretum Conifer Collection.

Pinus koraiensis Sieb. and Zucc., Korean Pine or Korean Nut Pine

This important timber and nut tree of the mountains of Korea, Manchuria and certain areas of Honshu, the main island of Japan, has been grown in the western hemisphere even longer than the Armand Pine, the date of its introduction having been recorded as 1861.

While uniformly pyramidal as a younger tree, with divergent, horizontal branches which ascend at the tips, age is said to result in a forking of the trunks and in the development of a pleasing irregular branch structure. Seventy-five feet is this pine's usual ultimate height as it tends to be slow growing, although ninety-foot trees, ten feet in girth, have been reported. It is hardy in New England and as far north as southern Ontario. Specimens at the Central Experimental Farm in Ottawa have been described as, "heavier in appearance and darker in foliage than White Pine", but here at the Arboretum it is a rather open, somewhat sparsely needled pine, whose dark summer color yellows in winter.

Confusing in the variability of their arrangement, the straight needles may be found grouped in bundles of twos, threes or fives—all on the same plant. Five is the usual number, however. They vary from two and a half to four and three quarters of an inch long, are dark green, without prominent white lines, serrulate, and triangular in cross section. The branchlets on which they are borne are distinguished by a grayish-brown pubescence. Dark, chestnut-brown, oblong-ovoid winter buds with acuminate tips provide another means of differentiation.

Korean Pine bark may be recognized by its dark gray or grayish-brown coloring, its thinness, and by the way it peels off in irregular flakes to reveal the orange or reddish-brown covering beneath.

Flowering and fruiting habits vary considerably among the pines, *P. koraiensis* being notoriously slow to start. As a matter of fact, the twenty-five foot Arboretum specimen illustrated still has not flowered. In this connection, it is interesting to know that juvenile trees of this species produce predominantly male flowers, with the pistillate inflorescences being localized in the several upper whorls and the leader. The chief distinction of the Korean Pine's four to six inch, short-peduncled, yellowish-brown, conic-oblong cones is their rhombic-ovoid scales with thick, recurved tips. They enclose the larger than one-half inch brown, sharply edged, edible seeds.

In spite of its reputed hardiness, we would recommend planting the Korean Pine in a location protected from sweeping winds, the growth being greater in sheltered sites and the foliage more dense

E. L. Kammerer



The largest specimen of *Pinus koraiensis* Sieb. and Zucc., the Korean Nut Pine, in the Arboretum Collection.

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